W. J. GARRISON.

Railroad Gates.

No.147,495.

Patented Feb. 17, 1874.



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UNITED STATES PATENT OFFICE

WILLIS J. GARRISON, OF SHENANDOAH IRON-WORKS, VIRGINIA.

IMPROVEMENT IN RAILROAD-GATES.

Specification forming part of Letters Patent No. 147,495, dated February 17, 1874; application filed October 20, 1873.

To all whom it may concern:

Be it known that I, WILLIS J. GARRISON, of Shenandoah Iron-Works, in the county of Page and State of Virginia, have invented certain new and useful Improvements in Railroad-Gates, of which the following is a specification:

The object of this invention is to improve that class of railroad-gates which are operated by a passing train through the medium of certain mechanical devices; and the invention consists in the arrangement, in respect to a railroad track or crossing, of two swinging gates, which are opened through the medium of a pair of supplementary rails located at the side of the main rails, and carried by a laterally-extending lever or arm, the rear end of which is elevated when the wheels of the locomotive depress the supplementary rails, so as to cause the friction wheel or roller at the extremity of said lever to travel upon a cam-head on the lower end of the axis-pin of the gate, causing the latter to be raised and to be swung outward from the track, for permitting the free passage of the train, after which the gate is returned to its closed position by its own gravity, one pair of rails and levers serving, in this instance, to hold the gate in an open position until the last car of the train has passed, so as to prevent a too rapid closing of the gate. The invention also consists in locating at the upper end of the gate post or axis, within a surrounding casing, a stationary notched cam, which operates, in connection with a friction-wheel on said gate-post, or on the axis of the same, as an auxiliary medium for imparting a vertical movement to the gate when being opened by the lower cam and operative devices, and, furthermore, serves to lock the gate when closed, in order to prevent cattle, &c., from opening the same. The invention further consists in the arrangement, in respect to the upper end of the gate-axis, of a spiral, elliptic, or other suitable spring, which shall serve to prevent a too violent concussion when the gate is thrown open, and also to aid in returning the same to its closed position when the pressure of the train is removed.

In the accompanying drawings, Figure 1 is a plan view of a pair of sectional gates, showing their arrangement in relation to the track and operative devices. Fig. 2 is a side view of the same, showing also, in section, the devices at the upper end of the gate-post.

A A A' A' represent two pairs of supplementary or removable pressure-bars, arranged on the inside of the track-rails B, one pair being placed on each side of the sectional gates C C, as indicated in Fig. 1. Said rails or bars A A' are placed in such position in relation to the track-rails B that the flanges of the wheels of an approaching train shall press upon one pair of such rails A or A', and depress the same, and in so doing depress the levers D D' on each side of the track, which are affixed to the rock-shaft E, turning in bearings a carried by sleepers or other suitable foundations. The levers $\mathbf{D} \mathbf{D}'$ are formed with long arms b, which are provided with friction-rollers c, arranged in position to operate cams F, affixed to the lower end of the post G of the gates C in such a manner as to turn the gates on their axes, so as to raise the same. The post G of each gate, at its lower end, turns in a bearing or step carried by the sleeper or foundation H, while its upper end is provided with a short axis, d, which turns in a bearing, H', formed or affixed in the case or box I, upon which axis is mounted a roller, e, which runs upon an in-clined or cam surface, J, in such a manner that, when the gate C is turned on its axis and raised by the levers D D', such roller e and the inclines J may take the weight of the gates C off the levers D D', and, when such levers D D' are released, serve to bring the gates C back to their normal position, when the rollers e will rest in a recess, f, in the cam J, thereby holding the gates C securely closed, and preventing them from being opened either by catthe or by the wind. At the upper end of the gate-post there is arranged a spring, g, which may be of a spiral form, and encircle its axis; or it may be of a bent or elliptic shape, so as to bear upon the upper end of the same. The function of said spring is to relieve the jar or concussion when the gate is opened, and also to aid in retaining it in its closed position by exerting a downward force when the pressure of the train is removed.

After the gates have been opened by an approaching train, by the wheels pressing on the rails or bars A or A', such gates will be firmly held in position by the said rails and the mech-

anism connected therewith (the mechanism connected with each pair of rails being an exact duplicate of the other) until the train has had time to pass perfectly clear of the gates, when the same will close automatically.

The cams F are formed with duplicate surfaces h, so that they may be operated by the levers D D' on either side of the gate, as required; and, when one pair of levers has ceased to act, the other will retain the gates in position until the train has completely passed.

In order to protect the operative devices from inclement weather, I inclose the same in a surrounding box or casing, as shown in dotted lines in Fig. 2 of the drawing.

In operation, it will be perceived that a train approaching from the right will depress the first pair of supplementary rails, and, through the intervention of the connecting devices, open the gates, and, as said rails are extended a suitable distance from the gates, the opening of the same will not be too violent; but, to counteract all injury, bumpers or cushions may be located at the sides of the track for preventing injury to the gates. Neither are the gates abruptly closed after the last car has passed. The supplementary rails, which serve to open the same for the tread of the wheels, will then depress the heretofore inactive rails or bars, causing the same to hold the gates open by elevating the friction-rollers carried by their levers in contact with the cams of the

gate-posts, retaining the gates in this position until the train is at a suitable distance and the pressure upon the rails or bars removed, when the gates will automatically close by their own gravity, and through the medium of the springs at their upper ends.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement, in respect to the trackrails B B, of supplementary rails or movable bars A, levers D b, and friction-roller c, arranged in co-operative relation to the cam-head F of the vertically-movable gates C C, as and for the purpose specified.

2. In combination with the gate C and the automatic operative devices, the grooved locking-cam J, arranged as shown, and operating in connection with the friction-wheel *c* or equivalent device, as and for the purpose specified.

3. In combination with the gate C, automatic operative devices, locking cam J, and friction-wheel e, the reacting spring s, arranged as shown, for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of October, 1873.

WILLIS J. GARRISON.

Witnesses:

WM. J. PEYTON, JAMES L. NORRIS.